

*THE EFFECTS OF DIRECTIVE AND NONDIRECTIVE  
PROMPTS ON NONCOMPLIANT VOCAL BEHAVIOR  
EXHIBITED BY A CHILD WITH AUTISM*

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Results of an analogue functional analysis indicated that noncompliant vocal behavior exhibited by a young girl with autism was maintained by negative reinforcement. Follow-up analyses suggested that the immediate escape contingency assessed in the demand condition did not appear to maintain the behavior. Instead, noncompliant vocal behavior occurred in response to directive prompts. Nondirective prompts reduced noncompliant vocal behavior to near zero.

DESCRIPTORS: vocal behavior, instructions, nondirective prompts, functional analysis, autism, developmental disabilities

Previous research has demonstrated the possibility of false-positive findings from analogue functional analyses (Shirley, Iwata, & Kahng, 1999). The current study combined informal observations and experimental analyses to describe a case example of problem behavior that occurred at differentially higher rates during the demand condition of a functional analysis because of specific antecedent stimuli (i.e., type of directive) rather than the immediate escape contingency assessed during the demand condition. Results of a treatment analysis showed that an antecedent intervention in the form of nondirective prompts (Piazza, Contrucci, Hanley, & Fisher, 1997) reduced

problem behavior to near zero during demand situations.

## METHOD

### *Participant and Setting*

Suzie was a 10-year-old girl who had been diagnosed with autism and developmental delays. She had been referred to an outpatient clinic for treatment of several different types of disruptive vocal behavior that were reported to occur during a variety of situations. However, Suzie displayed only noncompliant vocal behavior (NVB) during the study. Suzie communicated via multiple-word sentences, and she had no ambulation difficulties. Eight to 15 5-min sessions were videotaped during weekly home visits for 1 month; her mother served as the therapist with coaching from an experimenter.

### *Response Measurement, Interobserver Agreement, and Procedural Integrity*

Observers recorded frequency of NVB and compliance within 10-s intervals. NVB was

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defined as any vocal behavior involving a refusal to comply with a request (e.g., "I can't ever do that," "I won't do it," "It's not time for reading."). Each sentence with NVB was scored as a single occurrence. Compliance was defined as Suzie displaying the behavior requested regardless of NVB. That is, Suzie frequently simultaneously or sequentially engaged in NVB and compliance (e.g., saying "I can't do it" while pointing to a letter that she had been asked to identify). A second observer independently recorded dependent variables for 30% of the sessions across conditions. An agreement was scored when both observers recorded the same frequency of behavior in the same interval. Exact agreement was calculated by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100%. Interobserver agreement for NVB, frequency of prompts, and compliance was 99% (range, 93% to 100%), 99% (range, 91% to 100%), and 97% (range 86% to 100%), respectively. During Phase 3, procedural integrity data were collected on the primary independent variable (e.g., directive and non-directive prompts). Procedural integrity for correct prompts was 97% (interobserver agreement was 100%, collected across 25% of sessions for both conditions). An integrity checklist is available from the first author on request.

### *Procedure and Results*

*Phase 1.* A functional analysis of Suzie's NVB was conducted using procedures similar to those described by Iwata, Dorsey, Slifer, Bauman, and Richman (1982/1994). The following conditions were presented in 5-min sessions within a multielement design: free play, alone, attention, and demand. During the free-play condition, Suzie's mother provided continuous social interaction and unrestricted access to toys and books. The alone condition consisted of leaving Suzie alone with the videocamera running. The attention condition consisted of Suzie's mother instructing Suzie to

play while she worked, then ignoring Suzie and reprimanding occurrences of NVB. During the demand condition, Suzie's mother prompted her to complete tasks such as number, letter, and picture identification. If she complied, she received praise and was prompted to complete another task. Requests were stopped contingent on NVB, she was told that she did not have to work any more, and demand materials were removed for approximately 20 s.

The functional analysis (Figure 1, top) showed elevated rates of NVB during the demand condition, suggesting that NVB was maintained by negative reinforcement in the form of escaping task demands. NVB occurred during the free-play and attention conditions when Suzie's mother prompted her to play (e.g., "Do you want to play with \_\_\_\_" during free-play sessions; "Play while I work" during attention sessions).

Observations during demand sessions indicated that Suzie engaged in NVB after all requests to complete demands, but she complied with 42% of the requests (data not shown). For example, when Suzie's mother asked her to name a letter of the alphabet, Suzie said "I can't ever do that" and then she named the letter after escape was provided for NVB. In addition, when demands required a motor response (e.g., pointing to a letter), she frequently requested the return of task materials and attempted to physically obtain the task materials during the escape interval. These informal observations led to the hypothesis that prompts to complete demands set the occasion for NVB, but NVB was not maintained by the immediate escape contingency of the demand condition (given the high level of compliance and attempts to comply after emitting NVB).

*Phase 2.* To further assess whether Suzie's NVB was maintained by negative reinforcement in the form of escape, we compared two conditions in a multielement design: (a) demands without removal of task materials and (b) demands with removal of task materials.

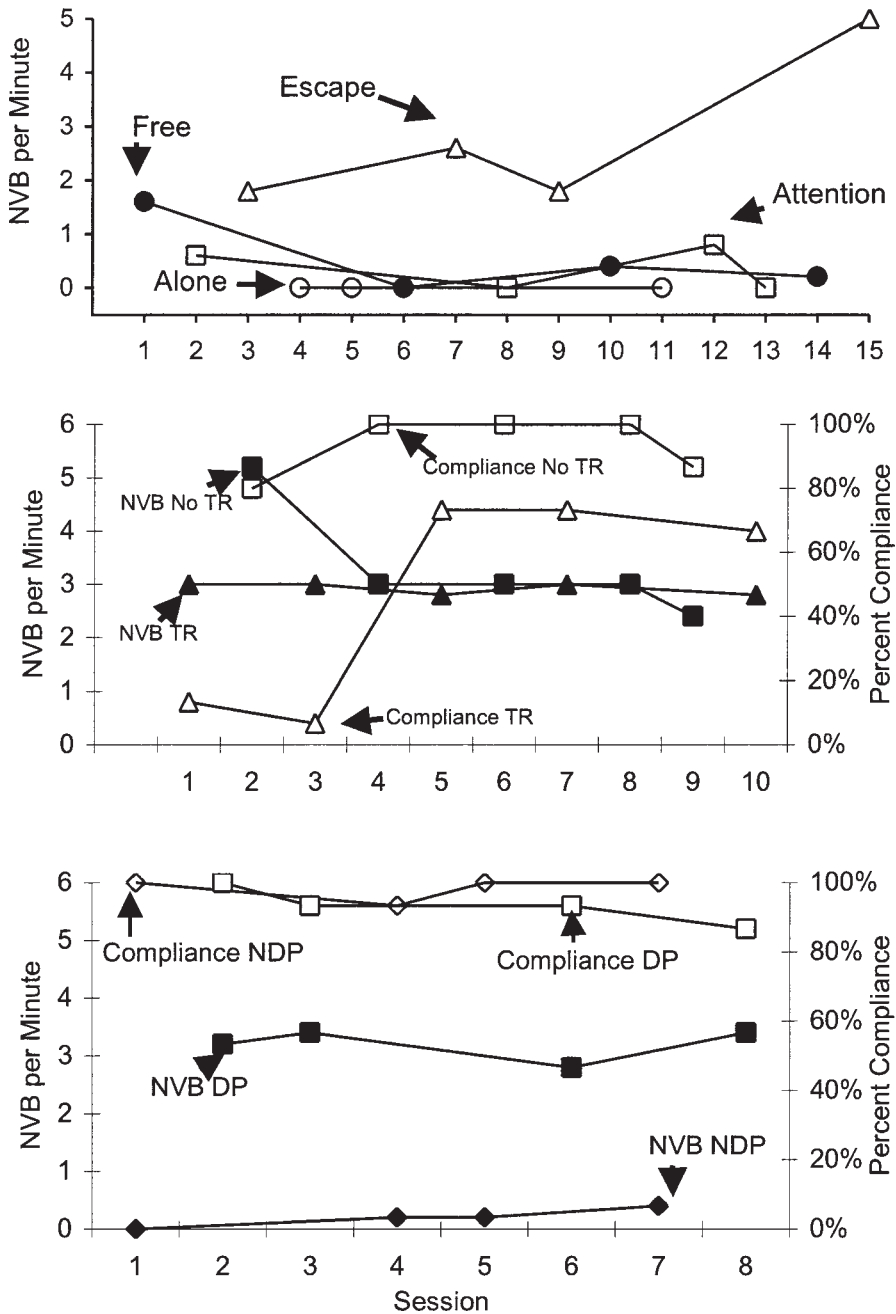


Figure 1. Rate of noncompliant vocal behavior (NVB) during the functional analysis (top panel). Rate of NVB and compliance during demand conditions with or without removal of task materials (middle panel). Rate of NVB and compliance during demand conditions with directive or nondirective prompts (bottom panel). No TR = no task removal, TR = task removal, DP = directive prompts, NDP = nondirective prompts.

Procedures for the demand without removal condition were identical to the demand condition of Phase 1. During the demand without

removal condition, Suzie's mother presented similar requests (i.e., the same tasks), but she did not turn away or remove the demand

materials contingent on NVB. Instead, she remained oriented towards Suzie and the task materials and waited silently until Suzie complied, or she waited for 20 s for Suzie to comply while requiring her to sit in front of the task materials. The 20-s prompt interval was held constant across the two conditions in Phase 2 to allow a direct comparison between conditions that differed only in the type of consequence for NVB. Thus, if NVB was functionally related to demands but not the immediate contingency of escaping from the task, NVB would reliably occur after demand prompts with no difference in rate of NVB between the two conditions.

Rates of NVB were similar during the two demand conditions in Phase 2 (Figure 1, middle). In addition, compliance was high across the last three sessions for both conditions, even though escape was provided for NVB during the demand with removal condition. That is, she frequently emitted a correct vocal response during the escape interval, or she complied with a task that required a motor response before emitting NVB.

Informal observations during the free-play condition of Phase 1 and during breaks between sessions suggested that Suzie did not exhibit NVB when prompts were delivered in a non-directive format (e.g., "I wonder where the W is"). Given these observations and the results of Phase 2, we hypothesized that modifying the directive during demands would result in reduction of NVB and maintenance of compliance.

*Phase 3.* We examined the effects of non-directive and directive prompts on Suzie's NVB in a multielement design while holding all other variables constant (e.g., consequence for NVB, type of task, and number of prompts per session). Aside from phrasing requests via a nondirective (e.g., "I wonder where the \_\_\_ is" or "I can't find the \_\_\_") or directive (e.g., "Show me the \_\_\_") prompt, the conditions were identical to the demand without removal condition of Phase 2. (See Piazza *et al.*, 1997, for a more complete description of nondirective prompts.)

The bottom panel of Figure 1 shows rates of NVB and percentage of requests with compliance during demand conditions with directive and nondirective prompts. NVB occurred at higher rates in the directive prompts condition, and near-zero rates of NVB occurred in the nondirective prompts condition. Interestingly, compliance was 98% during the nondirective prompts condition and 93% during the directive prompts condition. Thus, during the directive prompts condition, Suzie exhibited high rates of NVB but she continued to comply with most requests. When the prompts were nondirective, Suzie exhibited high levels of compliance and low levels of NVB.

## DISCUSSION

The results of this study highlight the complexity of assessing the individual effects of antecedents and consequences on occurrences of problem behaviors. That is, without further analysis of NVB, a treatment package designed to reduce NVB maintained by the immediate escape contingency assessed in the functional analysis demand condition would have been recommended but probably would have been ineffective. It appears that NVB was functionally related to directive prompts (a specific antecedent-response relation), and the demands did not function as an establishing operation for the immediate escape contingency tested in the functional analysis demand condition.

One limitation of the study is that, because task prompts were delivered on a 20-s fixed-time schedule during Phase 2, we cannot completely rule out the possibility that NVB was sensitive to negative reinforcement in some form other than removal of task materials (e.g., the delay between prompts). The high levels of compliance attenuate this concern somewhat, however. A second limitation of the study is that we were unable to determine what mechanism maintained NVB. NVB was shown to be related to a topographical feature of the directive itself, and it is possible that

consequences in Suzie's learning history related to directive prompts affected this behavior. These results support the need to continue investigating the role of vocal antecedent stimuli on occurrences of problem behavior (Piazza et al., 1997; Richman, Wacker, Cooper-Brown, Kayser, & Crosland, 2001) as we extend our assessment methodologies to complex behavior that may be sensitive to variables such as temporally distant contingencies, extended histories of reinforcement, and rule-governed behavior.

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